PDR RID Report

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Document	RT Scenario		**Priority** 2

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Category Name Design   **Actionee** HAIS

Sub Category

Subject Telemetry Decom Processing

Description of Problem or Suggestion:

Question:

If telemetry processing would be selected s/c parameters, (temp, not subsystem) as well as selected other instruments and all MISR housekeeping, will decomm still be 1% of CPU usage and how will the data be multicast (the whole 16K)? If by list provided, will we need to go through a CCB process to change? What if offline processing may be different than "real-time"?

Originator's Recommendation

Need to have meeting/discussion with telemetry processing people to cover - perhaps as instrument working group meeting adjunct.

GSFC Response by: **GSFC Response Date**

HAIS Response by: D. Herring   **HAIS Schedule**   1/13/95

HAIS R. E.   D.Dunn   **HAIS Response Date**   1/13/95

1. Because selective decom processes a subset of the total housekeeping telemetry data, the CPU processing load will continue to decrease as fewer and fewer parameters are processed. Our prototyping has found that the load decreases in a fairly linear fashion.

While our current telemetry decom prototype uses approximately one-percent of the CPU to decommutate 1600 parameters per Housekeeping packet on an HP 715, we expect CPU utilization to increase as more features and capabilities are added for the delivered product. Note that CPU utilization is tied tightly to the inherent processing speed of the host workstation. Also keep in mind though, that the above figure represents the CPU utilization when decommutating all parameters. Any selective decommutation will lighten this load.

2. Real-time telemetry will be multicast from the EOC Real-Time Server. Any workstation that has registered interest in a particular telemetry stream by joining a logical string will receive real-time telemetry EDOS Data Units (EDUs). The telemetry EDUs encapsulate spacecraft CCSDS packets which contain all downlinked parameters of a given type (APID). AM-1 housekeeping data will be downlinked using a single APID. Each telemetry decom will always receive all telemetry information, however may not decommutate and process all parameters.

3. We currently provide three methods in which parameters are to be decommutated. The first occurs when telemetry decom is in mirrored (comprehensive) mode. In this mode, all parameters are processed at the workstations just as they are processed on the Real-Time Server. Note that in this case there is no selection available to the user (default selection = all).

The second and third means require that telemetry decom be in tailored mode. The second alternative allows parameter decommutation to be selected on a parameter and/or subsystem basis. The final mechanism permits selective decommutation of parameters based upon some other criteria (e.g. temperature, current) which is simply an expansion of the previous method. For each group, the user would run a procedure that contained directives to individually enable the parameters/subsystems to be decommutated for that group. The procedure definitions would be a user responsibility.

These mechanism would not require CCB approval. CCB approval would only be necessary in the case where the subsystems were to be redefined.

4. Telemetry decommutation functions the same way whether data is being processed in real-time or via a replay of archived information. All telemetry parameters, or some subset, can be processed during real-time or off-line operations. The primary difference will simply be the source of telemetry information. We are currently studying options for allowing limited download and storage of archived telemetry to the IST workstations. This would provide IST users with a local replay capability that would not require or involve the EOC. Results of our study will be presented at the FOS CDR.

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Status **Closed** **Date Closed** **2/1/95** **Sponsor** **Johns**

****** **Attachment if any** ******